

AMENDMENTS TO THE CLAIMS

1. **(Original)** An isolated stem cell population wherein said stem cells are capable of self regeneration, capable of differentiation into ectodermal, mesodermal and endodermal cells and capable of adhering to tissue-culture grade plastic.

2. **(Currently amended)** The cell population according to claim 1, wherein said stem cells are further characterised ~~by the ability of the cells~~ able to adhere to tissue-culture grade plastic within 3 hours after isolation, and to remain adherent for at least 72 hours.

3. **(Currently amended)** The stem cell population according to claim 1 ~~or claim 2~~ wherein the cells are CD33⁻, CD38⁻, HLA-DR⁻, CD3⁻ and CD19⁻.

4. **(Currently amended)** The stem cell population according to ~~any preceding~~ claim 1 which is enriched for cells which are also Thy-1⁺.

5. **(Currently amended)** The stem cell population according to ~~any preceding~~ claim 1 which is enriched for cells which are also AC133⁺ and/or c-met⁺.

6. **(Currently amended)** The stem cell population according to ~~any preceding~~ claim 1 that expresses genes encoding Rex-1, Oct 4, Nanog, CD34, CD133, PECAM, VWF, Tal-1, CXCR4, Angiopoietin 1, Tie 2, TNNT1, Desmin, Nebulin, Connexin-43, GATA-4, VEGF, KDR, Angiopoietin 2, ICAM-2, VE cadherin, Alpha-1-antitrypsin, Cytokeratin 18, Nestin, Vimentin and c-met.

7. **(Currently amended)** The stem cell population according to ~~any preceding~~ claim 1 whose progeny produced after culturing express genes encoding CD133, PECAM, VWF, Tal-1, CXCR4, Angiopoietin-1, Nebulin, Troponin 1, VEGF, Angiopoietin 2, ICAM 2, Alpha-1-antitrypsin, Cytokeratin 18, LDLR, Albumin, HGF, transferrin, Alphafeto protein, Pax-6, Pdx=1, Insulin, IGF-1, NeuroD-1 and NGN3.

8. **(Currently amended)** The stem cell population according to ~~any preceding~~ claim 1 whose progeny express genes involved in insulin production.

9. **(Currently amended)** The stem cell population according to Claim 1, ~~any one of claims 1-8~~ wherein the stem cells are adult stem cells.

10. **(Currently amended)** The stem cell population according to Claim 1, ~~any one of claims 1-8~~ wherein the stem cell population comprises fetal cells obtained from a non-fetal sample such as an umbilical cord sample.

11. **(Currently amended)** The stem cell population according to ~~any preceding claim 1~~ wherein the cells have the characteristics of those deposited with ECACC under accession No. 04092401.

12. **(Currently amended)** The stem cell population according to ~~any preceding claim 1~~ which is mammalian in origin.

13. **(Currently amended)** The stem cell population according to ~~any preceding claim 1~~ which is human in origin.

14. **(Currently amended)** The stem cell population according to ~~any one of claims 1-12~~ claim 12 which is murine, equine or bovine in origin.

15. **(Currently amended)** The stem cell population according to ~~any one of claims 1-12~~ claim 12 which is isolated or derived from a sample taken from a companion animal.

16. **(Currently amended)** The stem cell population according to ~~any preceding claim 1~~ which does not require feeder layers during culturing thereof.

17. **(Original)** An isolated stem cell population capable of self regeneration and differentiation into ectodermal, mesodermal and endodermal cells, said population obtainable by:

- (i) subjecting haemopoietic tissue to density gradient separation;
- (ii) exposing low density cells to an affinity ligand for CD34;
- (iii) recovering cells attached to said CD34 ligand;
- (iv) exposing the CD34⁺ subpopulation to tissue culture grade plastic; and
- (v) recovering CD34⁺ cells adherent to said plastic.

18. **(Original)** A culture comprising:

- (i) a stem cell population wherein said stem cells are capable of adhering to tissue-culture grade plastic, capable of self regeneration and capable of differentiation into ectodermal, mesodermal and endodermal cells; and
- (ii) a medium capable of supporting the growth of said stem cells.

19. **(Original)** A method of isolating a stem cell population wherein said stem cells are capable of adhering to tissue-culture grade plastic, capable of self regeneration and capable of differentiation into ectodermal, mesodermal and endodermal cells, which method comprises taking a sample of blood or bone marrow from a subject and extracting said cell population therefrom.

20. **(Currently amended)** A The method of isolation ~~as claimed in claim 19~~ which comprises:

- (i) subjecting haemopoietic tissue to density gradient separation;
- (ii) exposing low density cells to an affinity ligand for CD34;
- (iii) recovering cells attached to said CD34 ligand;
- (iv) exposing the CD34⁺ subpopulation to a solid support; and
- (v) recovering cells adherent to said solid support.

21. **(Currently amended)** A The method according to claim 20 wherein the solid support is selected from tissue-culture grade plastic or glass.

22. **(Currently amended)** A The method as claimed in claim 19 ~~or 20~~ which further comprises a step of culturing said isolated population of stem cells.

23. **(Currently amended)** A method of producing a population of target cells which comprises culturing a the stem cell population as defined in ~~any of claims Claim 1 to 17~~ with a plurality of growth factors which causes differentiation of said stem cell population.

24. **(Currently amended)** A The method as claimed in claim 23 wherein the target cell is selected from the group comprising liver, pancreatic, haemopoietic, neuronal and oligodendrocytic cells.

25. **(Currently amended)** A method of culturing a the stem cell population as ~~defined in any one of Claim claims 1 to 17 which comprises, comprising contacting said population with a plurality of growth factors which promote and/or sustain proliferation of said stem cell population.~~

26. **(Currently amended)** A cell population produced by a the method ~~as claimed in any one of Claim claims 19 to 25.~~

27. **(Currently amended)** A The cell population as claimed in Claim 1 ~~any one of claims 1- 17 or~~ and 26 wherein the cell is capable of surviving cryopreservation.

28. **(Currently amended)** A The cell population as claimed in any one of claims 1, to 17, or 26 ~~or 27~~ wherein ~~the~~ a genome of said cells has been altered by insertion of a region of a nucleic acid.

29. **(Original)** The cell population of claim 28 wherein the genome is altered by insertion of DNA using a DNA virus, RNA virus or a retroviral vector.

30. **(Currently amended)** A cell population as claimed in any one of claims 1, ~~to~~ 17, or 26 ~~or 27~~, wherein a portion of ~~the~~ a genome of said cells has been inactivated, ~~e.g.~~ through the presence of an antisense nucleic acid molecule, a ribozyme sequence or an inhibitory RNA sequence.

31. **Cancelled**

32. **Cancelled.**

33. **(Currently amended)** A method of regenerating an organ or repairing a damaged organ of a patient which comprises administering to said patient cells according to any one of claims 1, ~~to~~ 17 or 26 ~~to 30~~.

34. **(Currently amended)** ~~A cell population or~~ The method according to claim 32 or claim 33 wherein the organ is selected from the group comprising the haemopoietic or immune system, liver, lung, pancreas, bone, cartilage, muscle, skin, brain or ~~nervous~~ nervous system and heart or circulatory system.

35. **(Currently amended)** ~~A cell population or~~ The method according to Claim 33 ~~any one of claims 32 to 34~~ wherein the cells are labelled with a traceable marker, **preferably iron oxide or paramagnetic beads.**

36. **(Currently amended)** A method of cell transplantation which comprises introducing into a subject the a cell population as claimed in any one of claims 1, ~~to~~ 17 or 26 ~~to~~ 30.

37. **(Currently amended)** A method of screening an agent for its organo-specific effects by exposing the cells produced by the a method as claimed in claim 23 ~~or 24~~ to said agent.

38. **(Currently amended)** ~~A~~ The method according to claim 37 wherein the agent is a toxin suspected of organo-specific toxicity.

39. **(Currently amended)** ~~A~~ The method according to claim 37 wherein the agent is a drug or therapeutic suspected of organo-specific toxicity.

40. **(Currently amended)** ~~A~~ The method according to claim 37 where the agent is a drug or therapeutic agent suspected of beneficial organo-specific effects.

41. **(Currently amended)** An *in vitro* method of protein production which comprises culturing the stem cells of any Claim ~~one of claims 1 to 17~~ or a differentiated cell line derived therefrom and